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Attorney Docket No. P21154

**Mail Stop Appeal Brief-Patents**

In re application of : Steven HILL et al

Application No. : 09/857, 204

Group Art Unit : 1723

Filed : September 18, 2001

Examiner : D.L. Sorkin

For : FLUID MIXING DEVICE

**Mail Stop Appeal Brief-Patents**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop Appeal Brief-Patents  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Commissioner for Patents  
Sir:

Transmitted herewith is a **Reply Brief Under 37 C.F.R. §41.41** in the above-captioned application.

Small Entity Status of this application under 37 C.F.R. 1.9 and 1.27 has been established by a previously filed statement.  
 A verified statement to establish small entity status under 37 C.F.R. 1.9 and 1.27 is enclosed.  
 An Information Disclosure Statement, PTO Form 1449, and references cited.  
 No additional fee is required.

The fee has been calculated as shown below:

Claims After Amendment	No. Claims Previously Paid For	Present Extra	Small Entity		Other Than A Small Entity	
			Rate	Fee	Rate	Fee
Total Claims: 37	*37	0	x 9=	\$	x 18=	\$0.00
Indep. Claims: 3	**3	0	X 44=	\$	x 88=	\$0.00
Multiple Dependent Claims Presented			+150=	\$	+300=	\$0.00
Appeal fee				\$		\$0.00
			Total:	\$	Total:	\$0.00

Please charge my Deposit Account No. 19-0089 in the amount of \$\_\_\_\_\_.

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The U.S. Patent and Trademark Office is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 19-0089.

Any additional filing fees required under 37 C.F.R. 1.16.

Any patent application processing fees under 37 C.F.R. 1.17, including any required extension of time fees in any concurrent or future reply requiring a petition for extension of time for its timely submission (37 CFR 1.136)(a)(3).

William Pieprz  
Bruce H. Bernstein Reg. No. 33,630  
Reg. No. 29,027

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants : Steven HILL et al.

Group Art Unit: 1723

Appln. No. : 09/857,204

Examiner: D. L. Sorkin

Filed : September 18, 2001

For : FLUID MIXING DEVICE

**REPLY BRIEF UNDER 37 C.F.R. §41.41**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop Appeal Brief- Patent  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Sir :

In response to the Examiner's Answer, dated April 8, 2005, to the Appeal Brief filed February 11, 2005, Appellants submit the present Reply Brief.

Appellants maintain that each reason set forth in the Appeal Brief filed February 11, 2005 for the patentability of the pending claims is correct and again respectfully request that the decision of the Examiner to reject claims 1-37 be reversed and that the application be returned to the Examining Group for allowance.

REMARKS

The "Grounds of Rejection" at pages 3-19 of the Examiner's Answer relies on the same references previously applied to reject the claims. It is respectfully submitted that the Appeal Brief filed February 11, 2005 has fully addressed the requirements for patentability under 35 U.S.C. §101, 35 U.S.C. §102, 35 U.S.C. §103 and 35 U.S.C. §112. Accordingly, the herein-contained remarks are merely supplemental to the Appeal Brief filed on February 11, 2005. In order to expedite review of this Reply Brief, the present remarks are limited to a discussion of features of the independent claims of the present application.

Rejections Under 35 U.S.C. §101 and §112

As should be clear upon review of the Grounds of Rejection, the premise for the rejections of claims under 35 U.S.C. §101 and/or §112 is that the claims are device claims which improperly recite "method steps". Accordingly, Appellants respectfully submit that resolution of this issue by the Board in Appellants' favor will provide a basis for reversing the rejection of claims under 35 U.S.C. §101 and/or §112.

In this regard, the Examiner's Answer asserts that claims 1 and 34 should be rejected, based upon *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990), "under section 112 second paragraph as ambiguous and under section 101 as nonstatutory". While admitting that "nothing is necessarily wrong with having a functional limitation in a device claim", the Examiner's Answer asserts, at page 4, that

claims 1 and 34 "go beyond reciting a functional limitation to recite an actual step".

Appellants note that the disputed language of claim 1 recites "*a fluid flow from said first fluid inlet and/or from said second fluid inlet establishing a recirculating vortex system within said chamber and resulting in a mixture of fluids from said first fluid inlet and said second fluid inlet(s) being directed through said mixed fluid outlet(s)*".

Additionally, the disputed language of claim 34 is "*a fluid flow from said first fluid inlet and said at least one second fluid inlet establishing a recirculating vortex system within said chamber and a mixture of fluids from said first fluid inlet and said at least one second fluid inlet being emitted through said mixed fluid outlet*".

As set forth in the Appeal Brief filed on February 11, 2005, claims 1 and 34 do not recite a "step" or method. Rather, claims 1 and 34 are directed to a fluid mixing device, and the above-noted features of claims 1 and 34 define characteristics of the claimed device. Further, claims 1 and 34 of the present application stand in clear contrast to the exemplary claim rejected in *LYELL* under 35 U.S.C. §101 and 35 U.S.C. §112. Accordingly, Appellants respectfully request that the Board recognize that claims 1 and 34 are not "method" claims, and do not recite "method steps". Appellants respectfully submit that such a finding will provide a clear basis for reversing the rejections of claims 1 and 34 under 35 U.S.C. §101 and/or §112 based on *LYELL*, (i.e., because the claims of the present application recite an invention falling in only a single statutory class for devices). Accordingly, Appellants respectfully submit that the rejections over 35 U.S.C. §101 and/or 35 U.S.C. §112 are improper and should be

reversed.

Rejections Under 35 U.S.C. §102(b)

Appellants respectfully submit that the claims are allowable under 35 U.S.C. §102(b). In this regard, with respect to the rejection of claims under 35 U.S.C. §102, the Examiner of the present application has repeatedly admitted that “[t]he basis for rejection is not that the reference discloses (explicitly, implicitly, or inherently)” the disputed functional characteristics of the invention recited in Appellants’ claims. See, e.g., Examiner’s Answer, p. 6.

Nevertheless, the Examiner’s Answer also argues that features of Appellants’ claims are presumed inherent. Appellants note that such a presumption improperly shifts a burden to Appellants to demonstrate an open-ended and unlimited negative proposition (i.e., that Appellants must prove that any reference that discloses the isolated and individual claimed structural features of the claimed device does not possess the claimed functional characteristics of the claimed device). In this regard, a proper rejection based on inherency requires that a reference necessarily possess the claimed characteristics which are asserted to be inherent. However, neither of the references applied in the rejections of claims under 35 U.S.C. §102(b) necessarily possesses the claimed features which are asserted to be inherent.

Appellants respectfully submit that no proper basis has been provided during prosecution to shift the burden of disproving the Examiner’s assertions that the

functional characteristics recited in the claims are inherent in the applied references. In this regard, Appellants' own specification teaches that only specific configurations of the structure shown in Appellants' figures will result in the characteristics recited in Appellants' claims. In this regard, the devices shown in the references are not similar (e.g., do not have the same "general shape" as in In re Schreiber) to the exemplary devices disclosed in the present application. Therefore, there is no reason to believe, nor has the Examiner set forth any reason to believe, that the devices of the references inherently possess the characteristics recited in Appellants' claims.

Appellants additionally note that, even if Appellants could obtain the devices shown in the references and demonstrate that the claimed functional characteristics are not inherent therein, the burden imposed by the Examiner could conceivably be extended to an unlimited number of additional references with no more cause than has been provided for the references applied so far during the prosecution.

The Examiner's Answer asserts, at pages 21-22, that "one need only supply fluid to the prior art device at sufficient velocity to necessitate the presence of vortices... Fishbane also explains that this threshold velocity is relatively low in a typical circumstance (for example 0.3 m/s)". Appellants submit that these assertions are circular and disingenuous. In this regard, FISHBANE discloses, at page 504, that "[f]or water flowing through a pipe 1 cm in diameter... flow becomes turbulent when  $v$  reaches merely 0.3 m/s". Of course, none of the devices shown in the references are a "pipe 1 cm in diameter", nor are they used for the passage of water. Accordingly, the

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above-noted teaching of FISHBANE does not support the assertion of inherency in any way.

The Examiner's Answer proceeds to assert, at page 25, that RYSCHKEWITCH would appear to force fuel gases through a burner at a flow (depending on the direction of travel) of at least 4 m/s. However, as noted by the FISHBANE article, the determination of whether a flow is "turbulent" depends on at least the velocity of flow, a length associated with the flow (i.e., a width orthogonal to the direction of the flow) and a viscosity of the fluid. Accordingly, estimating a speed of a fuel gas in RYSCHKEWITSCH does not evidence that the flow of the fuel gas would result in turbulent flow. Rather, a viscosity of the gas and a cross section of the burning chamber would need to be shown too, even according to the FISHBANE article.

In other words, the Examiner relies on characteristics of water flowing through a 1 cm pipe to demonstrate that gases flowing through the device in RYSCHKWETISCH would be turbulent. Appellants respectfully submit that this logic is simply faulty, as any determination of whether a vortex is obtained in RYSCHKEWITSCH would have to consider the viscosity of the fuel mixture and the length of a flow-chamber in a direction orthogonal to the direction of flow. However, the rejections are not based upon such considerations, nor do the references contain teachings that would lead one to reasonably reach the conclusions reached by the Examiner. Therefore, the rejections are based upon inanalogous considerations. Accordingly, Appellants respectfully submit that the references applied in the rejections do not inherently disclose the

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functional characteristics recited in Appellants' claims, nor has there been any reasoned basis provided in the rejections that would support shifting the burden to Appellants to prove that such characteristics are not present.

In any case, the references do not disclose or suggest even the structural features recited in Appellants' claims. In this regard, the Appeal Brief details numerous claimed structural features of Appellants' claimed invention which are not disclosed or suggested, in the claimed combination, by the references. Therefore, Appellants will forego presenting additional remarks with respect to the claimed structural features.

As a final matter, Appellants note that the Examiner's Answer contains numerous inaccuracies and mischaracterizations of Appellants' arguments. For example, the Examiner's Answer asserts (at page 20) that "Appellant does not even attempt to point a structural element or feature of an independent claim which is not disclosed by Patterson". This assertion is demonstrably false, as Appellants have detailed how the references do not disclose even the individual structural features of Appellants' claims, in the claimed combination, at, e.g., pages 18-20 and 33-35 of the Appeal Brief,.

Nevertheless, Appellants will forego the opportunity to catalogue and address each and ever mischaracterization of Appellants' claims and the applied references, and each and every misinterpretation of the applicable law that has occurred during the prosecution of the present claims.

Rather, Appellants conclude by again noting that the rejections are based on the

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mischaracterization of the characteristics of the device recited in Appellants' claims as "method steps", in an attempt to justify the long-standing position during prosecution that such features can be ignored for the purposes of examining claims under 35 U.S.C. §102 and/or 35 U.S.C. §103. In this regard, the Examiner has repeatedly stated, and continues to maintain, that the basis for rejection under 35 U.S.C. §102 is not that the references discloses (explicitly, implicitly, or inherently) the functional characteristics of the invention recited in Appellants' claims.

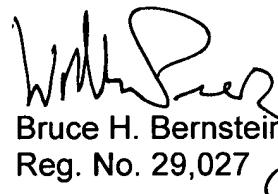
Accordingly, because the references do not disclose (i.e., either expressly, implicitly or inherently) each and every feature recited in Appellants' claims, as would be required for the rejections under 35 U.S.C. §102 to be proper, Appellants respectfully submit that each of the rejections under 35 U.S.C. §102 is improper and should be reversed.

**CONCLUSION**

Accordingly, Appellants respectfully submit that each and every pending claim of the present application meets the requirements for patentability under 35 U.S.C. §101, 35 U.S.C. §102, 35 U.S.C. §103 and 35 U.S.C. §112, second paragraph, and that the present application and each pending claim are allowable over the prior art of record.

Should there be any questions, any representative of the U.S. Patent and Trademark Office is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,  
Steven HILL et al.



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June 6, 2005  
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